

What is claimed is:

1. A process for making Aztreonam comprising reacting [3S-[3 α (Z),4 β]]-3-[[2-amino-4-thiazolyl][(1-t-butoxycarbonyl-1-methylethoxy)imino]acetyl]amino]-4-methyl-2-oxo-1-azetidinesulfonic acid (t-Bu Aztreonam) with an aqueous acid.
- 5 2. The process of claim 1, wherein the acid is a mineral acid.
3. The process of claim 2, wherein the mineral acid is selected from the group consisting of hydrochloric acid, sulfuric acid and trifluoroacetic acid.
4. The process of claim 2, wherein the aqueous mineral acid has a concentration greater than 0.1 mole/liter.
- 10 5. The process of claim 3, wherein the mineral acid is hydrochloric acid.
6. The process of claim 3, wherein the mineral acid is trifluoroacetic acid.
7. The process of claim 1, wherein the aqueous acid is a 1:1 v/v HCl:water mixture.
8. The process of claim 1, wherein the reaction takes place at a temperature greater than about 40 °C.
- 15 9. The process of claim 8, wherein the temperature is between about 50 °C to about 80 °C.
10. The process of claim 9, wherein the temperature is between about 60 °C to about 70 °C.
11. The process of claim 1, wherein the yield of Aztreonam is at least about 70%.

12. The process of claim 1, wherein the purity of Aztreonam, as measured by HPLC, is greater than about 98%.

13. The process of claim 1, wherein the purity of Aztreonam, as measured by HPLC, is greater than about 99%.

5 14. Aztreonam produced by the process of any of claims 1-10, which has a purity as measured by HPLC, of greater than about 98%.

15. Aztreonam produced by the process of any of claims 1-10, which is hydrated.